ANALYSIS DOSE PROFILE OF PHOTON SOURCE ON LINEAR ACCELERATOR (LINAC)

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ABSTRACT

Radiotherapy is a treatment of radiation therapy in a malignant tumor (cancer) using ionizing radiation, such as X-rays, gamma rays or high-energy electrons. One of the modern radiotherapy devices used in the treatment of cancer is linear accelerator (linac), this radiotherapy device produces electrons and X-rays (photons) generated by the generator and has various energies. In this dosage profile study used Elekta Compact linear accelerator (linac) 6 MV photon beam with radiation field ranged from 2×2 cm^2 to 40×40 cm^2. The Dosage of profile measurements was performed using water phantom, farmer chamber detector and condenser chamber equipped with computer control units (CCU) and done for crossline and inline directions at depth of D_{max} and 10 cm. This study aims as a quality assurance program (QA) in radiotherapy which should ensure the accuracy of the dose given to the patient. The result of dose profile analysis on 6MV photon beam shows for field 2×2 cm^2 and 3×3 cm^2 have value of flatness and symmetry that big enough, so in radiation therapy need to be concerned with field area usage.

Keywords: Radiotherapy, linac, flatness, symmetry, penumbra.

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